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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/629,219
Filing Date: July 31, 2000
Appellant(s): SHABTAY ET AL.

Joseph B. Ryan
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 06 June 2007 appealing from the Office action mailed 07 March 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

WITHDRAWN REJECTIONS

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. With one exception, the following grounds of rejection are not presented for review on appeal because the examiner has withdrawn them. The rejection of claims 1-13 under 35 USC 101 has been withdrawn.

(7) Claims Appendix

A substantially correct copy of appealed claims 1-17, 26-43 and 45-58 appears on pages 16-23 of the Appendix to the appellant's brief. The minor errors are as follows: the status of the

appealed claims is not indicated. Note, claims 1-13, 15-17, 26-37, 39-43 and 45-47 status as "Original" and claims 14, 38 and 48 as "Previously Amended."

(8) Evidence Relied Upon

5,959,989	Gleeson et al.	9-1999
5,963,556	Varghese et al.	10-1999

(9) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claims 26, 28, 31-34, 38, 39 and 41-43 are rejected under 35 USC 102(e) as being anticipated by Gleeson et al. (US 5,959,989);

Claims 1-17, 27, 29, 30, 35-37, 40 and 48 are rejected under 35 USC 103(a) as being unpatentable over Gleeson et al. (US 5,959,989) in view of Varghese et al. (US 5,963,556); and

Claims 45-47 are rejected under 35 USC 103(a) as being unpatentable over Gleeson et al. (US 5,959,989).

This rejection is set forth in a prior Office Action, filed on 07 March 2007, and is included below for the Board's convenience.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 26, 28, 31-34, 38, 39, and 41-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Gleeson et al. (US 5,959,989), hereinafter referred to as Gleeson.

Regarding claims 26 and 28, Gleeson discloses a method for efficiently distributing multicast messages having group destination address to subscribing entities in a computer network, which comprises:

A plurality of ports (Referring to Figure 2A, switch 221 comprises ports 1-5.)

A layer-2 bridging unit which bridges packets between the ports responsive to their destination MAC address and their VLAN (Referring to Figures 2A and 6, switch 221 bridges packets between ports based upon their destination MAC address and their VLAN identifier. See column 18, lines 53-64.)

A multicast detector which identifies a group of at least some of the IP multicast routing related packets received by the switch, the group including IGMP queries, and prevents the layer-2 bridging unit from bridging the identified packets at least through ports which do not lead to at least one neighboring layer-3 switch or router (Referring to Figure 2A and 6, switch 221 which bridges packets between ports based upon their destination MAC address and their VLAN identifier, utilizing the MAC address which corresponds to layer-2 switching (See column 18, lines 53-64.) The intermediate device, switch **221**, monitors and forwards multicast messages (multicast detector) to the corresponding MND **226** (See column 10, lines 44-47.) The switch **221** forwards packets at the data link level (layer-2 bridging) on the LAN (See column 12, lines 36-38.) Switch 221 detects multicast packets, including IGMP queries, and forwards them to corresponding MND 226 and not to ports that are not connected to MND 226, such as, ports 1,

4, and 5 (See column 9, lines 46-50.) Therefore, switch 221 prevents IGMP queries from transmission through ports 1, 4, and 5, which do not lead to a neighboring router.)

Regarding claim 31, Gleeson et al. discloses supporting DVMRP, PIM-SM, and PIM-DM. See col. 9, lines 23-26. With multiple protocols, it is inherent that the switch is response to these protocols.

Regarding claims 32 and 33, Gleeson et al. discloses distributing multicast messages that include control and routing related packets. The group of packets identified also configured for all its VLANs. See col. 9, lines 18-19.

Regarding claim 34, Gleeson et al. discloses the MND, which uses the multicast controller 306. It also routes at least IP related packets between ports of the same VLAN.

Regarding claim 38, Gleeson discloses a method for efficiently distributing multicast messages having group destination address to subscribing entities in a computer network, which comprises:

At least one VLAN interface which does not have an associated IP router interface

A layer-3 output unit which directs IP packets with a MAC source address of the switch through the at least one VLAN interface

Wherein the layer-3 output unit directs packets through the at least one VLAN interface, with an IP source address associated with a different VLAN interface of the switch (Referring to Figure 2A, the MND 226 is a type of layer-3 switch (router) that directs packets to the R, G, and B VLAN interfaces (See column 7, lines 57-59.) The MND 226 does not have an associated IP router interface. The distribution of messages also uses the MAC address derived from the IP destination address. The router (layer-3 output unit) forwards multicast IP packets with a source

address corresponding to another host (IP source address associated with a different VLAN interface of the switch) through port 1 (VLAN interface) to host 33 (See col. 12, lines 36-44.)

Regarding claim 39, as mentioned previously, the MND 226 is capable of handling IP packets routed in layer-3.

Regarding claims 41 and 42, Gleeson discloses that packets like DVMRP, PIM-SM, and PIM-DM can be sent (packets of a routing protocol). See col. 9, lines 23-26.

Regarding claim 43, Gleeson discloses that leave and join packets can be sent (IP multicast control packets). See col. 9, line 65.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-17, 27, 29, 30, 35-37, 40, and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gleeson et al. (US 5,959,989), hereinafter referred to as Gleeson, in view of Varghese et al. (US 5,963,556), hereinafter referred to as Varghese.

Regarding claims 1, 2, and 48, Gleeson discloses a method for efficiently distributing multicast messages having group destination address to subscribing entities in a computer network, which comprises:

Dividing the LAN to a number of segments larger than the number of virtual LANs (VLANs) in the network (Referring to Figure 2A, computer network 200, which includes a

plurality of local area networks 204-214. See column 7, lines 50-59. The Examiner interprets each of these LANs as having a "segment" connecting each router or switch to a terminal. The intermediate devices 220-223 are capable of establishing segmented virtual local area networks (VLANs) by associating various groups of LANs 204-214. See column 8, lines 4-8. Based upon the Examiner's interpretation, if the segments make up the VLANs, then there must be more segments then VLANs.)

Gleeson does not expressly disclose *creating a layer-3 multicasting routing table, which relates to each of the segments separately.*

Varghese teaches a device for partition ports of a bridge into groups of different virtual local area networks in which a router maintains a layer-3 multicasting table, which relates to each bridge port (each segment separately) (Referring to Figure 4, see column 8, lines 1-2 and 15-17.)

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the multicasting table of bridge ports of Varghese in the routing devices of Gleeson. One of ordinary skill in the art would have been motivated to do so in order to only transmits on bridge ports to hosts that are members of the corresponding multicast groups, thereby, reducing traffic flow and bandwidth as taught by Gleeson (See column 5, lines 27-40.) An added benefit of doing so would result in reduced network congestion and costs due to decreased network traffic.

Further regarding claim 48, Varghese teaches two methods of operation, one in which both the VLAN and port are identified (See column 8, lines 15-19) and one in which the source addresses for each VLAN is utilized (See column 7, lines 35-36.)

Regarding claim 2 more specifically, the purpose of the table in Varghese is so that the packets, which match the entries in the table according to their port, will be routed to the correct destination.

Regarding claim 3, the primary reference further teaches that the VLAN designation table associates each port of the device with the VLAN designation. See col. 8, lines 19-23.

Regarding claim 4, the primary reference further teaches identifying subscribing VLAN ports in the forwarding table 250. The group forwarding table preferably associates each group multicast address with the VLAN designations of the subscribing entities and the port numbers used to reach those entities (legal interface). See col. 10, lines 22-34.

Regarding claim 5, the primary reference further teaches, as shown in Fig. 2A, some of the LAN segments are different physical places from the other LAN segments. For example, LAN 204 and LAN 212 are not in the same physical location.

Regarding claim 6, the primary reference further teaches dividing VLAN Orange (O) of the LAN into a plurality of segments on LANs and trunk lines 207, 230, 232, 234, and 210 in Fig. 2A.

Regarding claim 7, the primary reference further teaches, as shown in Fig. 2A, the different LAN segments with 2 or more hosts connected are all connected on different segments.

Regarding claim 8, the primary reference further teaches that a backbone segment such as 230 in Fig. 2A that includes all the links for each VLAN that connects switches 220 and 221. Gleeson et al. discloses that external ports are used on 230 implies this backbone segment.

Regarding claim 9, the primary reference further teaches that each VLAN can be divided such that non backbone segments connect one or more hosts to each layer-3 switch, such as 208 in Fig. 2A that connects 3 hosts in the Green VLAN to layer-3 switch 221.

Regarding claim 10, the primary reference further teaches making the determination whether to distribute messages in that particular VLAN segment. See col. 11, lines 27-42.

Regarding claim 11, the primary reference further teaches that the multicast management conforms to IGMP. See col. 8, line 63.

Regarding claims 12 and 13, the primary reference further teaches the layer-3 switches, the MNDs 226 and 228, will not perform layer-2 switching, which is done by intermediate devices 220-223. See col. 7, lines 50-59.

Regarding claim 14, Gleeson discloses a method for efficiently distributing multicast messages having group destination address to subscribing entities in a computer network, which comprises:

Receiving a multicast packet by the switch through a first physical port on a first VLAN (Referring to Figure 2A, multicast network device (routers) receive a multicast packet through port 2 for a given VLAN. See column 8, lines 55-57.)

Wherein the multicast packet is bridged in layer-2 through a second physical port of the layer-3 switch (Referring to Figure 2A, the multicast packet is bridged in layer-2 via switch 221 through port 1 of the layer-3 router 226.)

Gleeson does not disclose *routing the multicast packet in layer-3 out a physical port of the switch, on the first VLAN.*

Varghese teaches a device for partition ports of a bridge into groups of different virtual local area networks in which a router maintains a layer-3 multicasting table which relates to each bridge port for routing the multicast packet in layer-3 out of a physical port of the router on a first or subsequent VLAN (Referring to Figure 4, see column 8, lines 1-2 and 15-17.)

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the multicasting table of bridge ports of Varghese in the routing devices of Gleeson. One of ordinary skill in the art would have been motivated to do so in order to only transmits on bridge ports to hosts that are members of the corresponding multicast groups, thereby, reducing traffic flow and bandwidth as taught by Gleeson (See column 5, lines 27-40.) An added benefit of doing so would result in reduced network congestion and costs due to decreased network traffic.

Regarding claim 15, the primary reference further teaches discloses decrementing the TTL. See col. 13, line 52.

Regarding claim 16, the primary reference further teaches as shown in Fig. 2A, port 1 on RMD 226 leads to a layer-3 router.

Regarding claim 17, the primary reference further teaches as shown in Fig. 2A, the connection between port 2 and the host is not bridged.

Regarding claim 27, it is well known that a bridge can act as a filter and not select certain packets to pass. It would have been obvious to include this feature into modified Gleeson et al. system. One would have been motivated to do this because certain packets should not be transmitted in order to save on bandwidth.

Regarding claims 29 and 30, the modified version of the switch in Gleeson et al. would include the ability to bridge the identified packets through a plurality of ports in the subset of ports.

Regarding claims 35, 36, and 37, the modified version of Gleeson et al. discloses that the bridging capabilities will prevent certain packets from being forwarded, irrespective of their destination addresses.

Regarding claim 40, Gleeson et al. does not expressly disclose generating IP packets at a higher layer in the switch; however, it is well known that higher levels than level-3 can generate IP packets. It would have been obvious to a person of ordinary skill in the art at the time of the invention to include packets generated at higher levels in the system disclosed by Gleeson et al. One would have been motivated to do this because this would simplify some of the routing processes that otherwise would have to take place.

Claims 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gleeson et al. (US 5,959,989), hereinafter referred to as Gleeson.

Regarding claims 45, Gleeson discloses a method for efficiently distributing multicast messages having group destination address to subscribing entities in a computer network, which comprises:

Receiving a packet with a source MAC address and a TTL value (Referring to Figure 6, receiving frame 402a at a switch and converting to frame 610. See column 12, line 40 and column 13, line 52.)

Changing the source MAC address of the received packet (Referring to Figures 3, controller 306 deletes the MAC header comprising the MAC source address field, thereby changing the MAC address value to the null value. See column 13, lines 23-26.)

Gleeson does not disclose *forwarding the packet with the changed MAC address but with the same TTL value.*

Gleeson teaches the switch utilizes conventional routing functions, such as, decrementing the TTL value indicating that the switch may decrement the TTL value (See column 13, lines 52-62.)

It would have been obvious to one of ordinary skill in the art at the time was made to implement packet forwarding with same TTL value in the system of Gleeson. One of ordinary skill in the art would have been motivated to do so in order to implement a router with a greater effective hop count limit to increase the effective propagation range of a datagram for communication with distant devices as consistent with conventional routing functions as taught by Gleeson.

Regarding claim 46, the primary reference further teaches receiving a packet 402a at switch 220 of Fig. 2A comprising an IP multicast packet generated by Red VLAN entity 27. See also Fig. 4A, and col. 12, lines 21-32.

Regarding claim 47, the primary reference further teaches forwarding the packet received from Red VLAN entity 27 with the Red VLAN onto ports 3 and 5 of switch 220 in Fig. 2A. See col. 12, lines 45-65.

(10) Response to Argument

Issue 1

On page 5 of the brief, regarding claims 1-13, the Appellant argues the claims are directed to statutory subject matter and the rejection should be withdrawn. The Examiner respectfully agrees. Accordingly, the 35 USC 101 non-statutory rejection of claims 1-13 has been withdrawn.

Issue 2

On page 7 of the brief, regarding claims 26, 28 and 31-34, the Appellant argues Gleeson does not disclose *a layer-2 bridging unit and a multicast detector which operate in manner recited in the claim.* The Examiner respectfully disagrees. The Examiner directs the Boards attention to the summary of the claimed subject matter, as relating to independent claim 26, as described on page 3, paragraph 4 of the Appellant's brief. The Appellant describes the claimed switch as being supported by elements 34X, 34Y and 34T of Figure 2 and page 9, lines 13-18 of the Appellant's specification. Referring to said Figure 2 and page 9 of the Appellant's specification, the Examiner notes that neither the figure nor the written description illustrate any structural or physical elements pertaining to a layer-2 bridging unit and multicast detector. Quite the contrary, elements 34X, 34Y and 34T of Figure 2 merely show a blank box without any elements pertaining to a layer-2 bridging unit and multicast detector. This clearly demonstrates that the structural or physical limitations of the layer-2 bridging unit and multicast detector are not critical. Therefore, any structure capable of performing the claimed layer-2 bridging and multicast detecting functionality would meet the claimed limitations. For example, Gleeson discloses switch 221, which is also a blank box and provides the claimed functionality (Referring

to Figures 2A and 6.) The switch 221 bridges packets between ports based upon their destination MAC address and their VLAN identifier utilizing the MAC address which corresponds to layer-2 switching (See column 18, lines 53-64.) The intermediate device, switch 221, monitors and forwards multicast messages (multicast detecting) to the corresponding MND 226 (See column 10, lines 44-47.) The switch 221 forwards packets at the data link level (layer-2 bridging) on the LAN (See column 12, lines 36-38.) Gleeson discloses, referring to Figure 2A, switch 221 detects multicast packets, including IGMP queries, and forwards them to corresponding MND 226 and not to ports that are not connected to MND 226, such as, ports 1, 4, and 5 (See column 9, lines 46-50.) Therefore, switch 221 prevents IGMP queries from transmission through ports 1, 4, and 5, which do not lead to a neighboring router. Therefore, Gleeson discloses *a layer-2 bridging unit which bridges packets between the ports responsive to their destination MAC address and their VLAN; a multicast detector which identifies a group of at least some of the IP multicast routing related packets received by the switch, the group including IGMP queries, and prevents the layer-2 bridging unit from bridging the identified packets at least through ports which do not lead to at least one neighboring layer-3 switch or router.* The Appellant also argues Gleeson teaches away from the claimed multicast detector by referring to the multicast controller 306 which is separate from the switch 221. The Examiner respectfully disagrees. The Examiner has explained that their interpretation of claim places the multicast detector functionality in the switch of Gleeson irrespective of Gleeson's multicast controller 306. Based upon the Examiner's interpretation, the Appellant's claim does not preclude such an interpretation regardless of the presence or functionality of the multicast controller 306. Essentially, the Examiner's position is that the system of Gleeson comprises multiple multicast

detectors including switch 221 and multicast controller 306. The Examiner's interpretation is both fair and reasonable based upon the broad and general nature of the claim. Accordingly, claims 27-34 are rejected for the same reasons stated above.

On page 7 of the brief, regarding claims 38, 39 and 41-43, the Appellant argues Gleeson does not disclose *at least one VLAN interface which does not have an associated IP router interface; a layer-3 output unit which directs IP packets with a MAC source address of the switch through the at least one VLAN interface; wherein the layer-3 output unit directs packets through the at least one VLAN interface, with an IP source address associated with a different VLAN interface of the switch.* The Examiner respectfully disagrees. Again, the claims are both broad and general in nature. With this in mind, Gleeson discloses, referring to Figure 2A, MND 226, a type of layer-3 switch (router) that directs packets to the R, G, and B VLAN interfaces (See column 7, lines 57-59.) The MND 226 does not have an associated IP router interface. The distribution of messages also uses the MAC address derived from the IP destination address. The router (layer-3 output unit) forwards multicast IP packets with a source address corresponding to another host (IP source address associated with a different VLAN interface of the switch) through port 1 (VLAN interface) to host 33 (See col. 12, lines 36-44.) Therefore, Gleeson discloses *at least one VLAN interface which does not have an associated IP router interface; a layer-3 output unit which directs IP packets with a MAC source address of the switch through the at least one VLAN interface; wherein the layer-3 output unit directs packets through the at least one VLAN interface, with an IP source address associated with a different VLAN interface of the switch.* The Appellant argues that the relied upon teachings of Gleeson does not disclose the claimed limitations without giving any weight to the Examiner's

interpretation. In addition, Appellant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. Furthermore, Appellant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited. Accordingly, claims 38, 39 and 41-43 are rejected for the same reasons stated above.

Issue 3

On page 8 of the brief, regarding claims 1-5 and 10-13, the Appellant argues that neither Gleeson nor Varghese disclose, teach, or otherwise make obvious *creating a layer-3 multicast routing table, which relates to each of the segments separately.* The Examiner respectfully disagrees. The Examiner directs the Boards attention to the summary of the claimed subject matter, as relating to independent claim 1, as described on page 2, paragraph 1 of the Appellant's brief. The Appellant describes the claimed LAN as being supported by element 30 and a number of VLANs as VLANs A, B, C and D of Figure 2 and page 11, lines 24 to page 12, line 9 of the Appellant's specification. However, the Appellant does not set forth any specific definition for the term "segment" in either Figure 2 or the relied upon teachings. This clearly presents a number of broad literal reasonable interpretations of the term "segment." Therefore, the Examiner interprets any structure capable of acting as a "segment" as meeting the claimed limitation. With this understanding in mind and the broad nature of the claim limitation, the Examiner interprets a segment as the link between the bridge port and destination device.

Varghese teaches a device for partitioning ports of a bridge into groups of different virtual local area networks in which a router maintains a layer-3 multicasting table. The multicasting table stores the individual relationship between each bridge port and its attached destination device (each "link" or "segment" separately) for proper data transmission (Referring to Figure 4, see column 8, lines 1-2 and 15-17.) Therefore, Varghese teaches *creating a layer-3 multicast routing table, which relates to each of the segments separately and does not teach away from the claimed invention*. The Appellant argues that Varghese teaches a VLAN table 144, which maps the address of a given source, such as Station A, to the corresponding VLAN, such as VLAN 1. However, the 48-bit source address mapping of Varghese is irrelevant and does not preclude the Examiner's interpretation, since the Examiner relies upon the relationship the multicasting table establishes between the bridge port and its attached destination device. The claim merely states that the layer-3 multicast routing table relates to each of the segments separately. The claim does not state that routing table cannot relate a source address to a VLAN table. The Examiner has defined their interpretation of claim and set forth a broad literal reasonable rejection of the claim, which teaches every claim limitation.

On page 9 of the brief, regarding claims 1-5 and 10-13, the Appellant argues the Examiner has failed to identify a cogent motivation for combining the Gleeson and Varghese references. The Examiner respectfully disagrees. In response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art.

See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the multicasting table of bridge ports of Varghese in the routing devices of Gleeson. One of ordinary skill in the art would have been motivated to do so in order to only transmit on bridge ports to hosts that are members of the corresponding multicast groups, thereby, reducing traffic flow and bandwidth as taught by Gleeson (See column 5, lines 27-40.) An added benefit of doing so would result in reduced network congestion and decreased costs due to lesser network traffic. In addition, unexpected results are not achieved. The Appellant's claimed advantages appear as though gleaned from the prior art. In response to Applicant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Accordingly, claims 2-5 and 10-13 are rejected for the same reasons stated above.

On pages 10-11 of the brief, regarding claims 6-9, the Appellant argues that neither Gleeson nor Varghese disclose, teach, or otherwise make obvious *creating a layer-3 multicast routing table, which relates to each of the segments separately.* The Examiner respectfully disagrees for the same reasons stated above.

On page 11 of the brief, regarding claims 14-17, the Applicant argues that neither Gleeson nor Varghese disclose, teach, or otherwise make obvious *receiving a multicast packet by the switch through a first physical port on a first VLAN; and routing the multicast packet in layer-3 out a second physical port of the switch on the first VLAN, wherein the multicast packet is bridged in layer-2 through a third physical port of the layer-3 switch.* The Examiner respectfully disagrees. The Examiner does not rely upon switch 221 to teach all of the claimed limitations of claim 14. The Examiner incorporates both switch 221 and router 226 (layer-3 switch) in the claim rejection. Gleeson discloses bridging multicast packets in the layer-3 router 226 when received from port 2 of the layer-2 switch 221 (receiving a multicast packet by the switch through a first physical port on a first VLAN). The packet is routed to element H through port 2 (routing the multicast packet in layer-3 out a second physical port of the switch on the first VLAN.) The packet is bridged through port 1 of the layer-3 router 226 (the multicast packet is bridged in layer-2 through a third physical port of the layer-3 switch) (Referring to Figure 2A, see column 12, lines 36-38 and column 18, lines 53-64.) Therefore, Gleeson discloses *receiving a multicast packet by the switch through a first physical port on a first VLAN; and routing the multicast packet in layer-3 out a second physical port of the switch on the first VLAN, wherein the multicast packet is bridged in layer-2 through a third physical port of the layer-3 switch.* Accordingly, claims 15-17 are rejected for the same reasons stated above.

On pages 12 and 13 of the brief, regarding claims 35-37, the Applicant argues that neither Gleeson nor Varghese disclose, teach, or otherwise make obvious *a multicast detector prevents the layer-2 bridging of packets, irrespective of the IP destination address of the packets.* The Examiner respectfully disagrees for the same reasons stated above. Furthermore, the modified

version of Gleeson teaches that the bridging capabilities will prevent certain packets from being forwarded, because Gleeson's switch will not forward multi-cast packets to unintended VLAN IDs regardless of their IP/MAC/host subscription information (logically equivalent to an IP or MAC address) destination address (See column 10, lines 22-33 and column 13, lines 6-18.) Therefore, Gleeson teaches *a multicast detector which prevents the layer-2 bridging of packets, irrespective of the IP destination address of the packets.*

On page 13 of the brief, regarding claim 48, the Applicant argues neither Gleeson nor Varghese disclose, teach, or otherwise make obvious *wherein the layer-3 multicast routing table may operate in a first mode in which interfaces are identified by both a VLAN and a port or in a second mode in which interfaces are identified only by a VLAN.* The Examiner respectfully disagrees. Varghese teaches two methods of operation, one in which both the VLAN and port are identified through association (See column 8, lines 15-19) and one in which the source addresses for each VLAN is utilized (See column 7, lines 35-36.) Varghese clearly relates to forwarding packets on VLAN to a destination by source address for Method 1, contrary to the Appellant's argument (See column 7, lines 35-36.) Therefore, Varghese teaches *wherein the layer-3 multicast routing table may operate in a first mode in which interfaces are identified by both a VLAN and a port or in a second mode in which interfaces are identified only by a VLAN.*

<u>Issue 4</u>

On page 13 of the brief, regarding claims 45-47, the Applicant argues Gleeson does not teach *forwarding the packet with the changed MAC address but with the same TTL value.* The Examiner respectfully disagrees. Gleeson teaches the switch may, but doesn't have to, utilize

traditional routing functions, such as, decrementing the TTL value (See column 13, lines 52-62.) Forwarding the packet with the IP header's TTL value remaining intact is a conventional and traditional method of IP packet forwarding. In accordance with traditional routing functions, such as, forwarding a packet with the same TTL, it would have been obvious to one of ordinary skill in the art at the time was made to implement packet forwarding with same TTL value in the system of Gleeson. One of ordinary skill in the art would have been motivated to do so in order to implement a router with a greater effective hop count limit to increase the effective propagation range of a datagram for communication with distant devices as consistent with traditional routing functions, as taught by Gleeson (See column 13, lines 52-62.). Accordingly, claims 46 and 47 are rejected for the same reasons stated above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Donald L Mills/

September 28, 2007

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